



20010-06USA.ST25.txt  
SEQUENCE LISTING

<110> POSCO  
POSTECH Foundation  
CHA, Hyung Joon  
HWANG, Dong Soo

<120> Mussel Bioadhesive

<130> 20010-06USA

<140> US 10/599,313  
<141> 2006-09-20

<150> PCT/KR2005/000888  
<151> 2005-03-25

<150> US 60/556,805  
<151> 2004-03-26

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30

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gttagatctat acgccggacc agtgaacag  
29

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<213> Artificial Sequence

<220>  
<223> primer

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cttgttatttt ccgctgtttt t  
21

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<210> 4  
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<220>  
<223> primer

<400> 4  
aaaaacacagcg gaaaatacaa g  
21

<210> 5  
<211> 228  
<212> DNA  
<213> *Mytilus galloprovincialis*

<220>  
<221> CDS  
<222> (1)..(228)  
<223> *Mytilus galloprovincialis* foot protein-5 cDNA

<400> 5  
agt tct gaa gaa tac aaa ggt ggt tat tac cca ggc aat act tac cac  
48 Ser Ser Glu Glu Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Thr Tyr His  
1 5 10 15  
tat cat tca ggt ggt agt tat cac gga tcc ggc tat cat gga gga tat  
96 Tyr His Ser Gly Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr  
20 25 30

aag gga aag tat tac gga aag gca aag aaa tac tat tat aaa tat aaa  
144 Lys Gly Lys Tyr Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys  
35 40 45

aac agc gga aaa tac aag tat ctg aag aaa gct aga aaa tac cat aga  
192 Asn Ser Gly Lys Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg  
50 55 60

aag ggt tac aag aag tat tat gga ggt ggt agc agt  
228 Lys Gly Tyr Lys Tyr Tyr Gly Gly Ser Ser  
65 70 75

<210> 6  
<211> 76  
<212> PRT  
<213> *Mytilus galloprovincialis*

<400> 6  
Ser Ser Glu Glu Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Thr Tyr His  
1 5 10 15

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Tyr His Ser Gly Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr  
20 25 30

Lys Gly Lys Tyr Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys  
35 40 45

Asn Ser Gly Lys Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg  
50 55 60

Lys Gly Tyr Lys Lys Tyr Tyr Gly Gly Ser Ser  
65 70 75

<210> 7

<211> 180

<212> DNA

<213> *mytilus edulis*

<220>

<221> CDS

<222> (1)...(180)

<223> 6 times repeated sequence derived from *mytilus edulis* foot  
protein-1

<400> 7

gct aaa ccg tct tac ccg ccg acc tac aaa gca aaa ccc tcg tac cca  
48

Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro  
1 5 10 15

ccg act tat aag gct aaa cct agc tat cca cct acg tac aaa gct aaa  
96

Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys  
20 25 30

ccg tct tac ccg ccg act tac aaa gca aaa ccg tcc tac cct ccg acc  
144

Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr  
35 40 45

tat aag gct aaa ccg agt tac ccc ccg act tac aaa  
180

Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys  
50 55 60

<210> 8

<211> 60

<212> PRT

<213> *mytilus edulis*

<400> 8

Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro  
1 5 10 15

Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys  
20 25 30

Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr  
35 40 45

Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys

50

55

60

<210> 9  
 <211> 411  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Bioadhesive protein(mgfp-150) coding sequence  
  
 <220>  
 <221> CDS  
 <222> (1)..(411)  
 <223> Bioadhesive protein(mgfp-150)  
  
 <400> 9  
 gct aaa ccg tct tac ccg ccg acc tac aaa gca aaa ccc tcg tac cca  
 48 Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro  
 1 5 10 15  
 ccg act tat aag gct aaa cct agc tat cca cct acg tac aaa gct aaa  
 96 Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys  
 20 25 30  
 ccg tct tac ccg ccg act tac aaa gca aaa ccg tcc tac cct ccg acc  
 144 Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr  
 35 40 45  
 tat aag gct aaa ccg agt tac ccc ccg act tac aaa agt tct gaa gaa  
 192 Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ser Ser Glu Glu  
 50 55 60  
 tac aag ggt ggt tat tac cca ggc aat tcg aac cac tat cat tca ggt  
 240 Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly  
 65 70 75 80  
 ggt agt tat cac gga tcc ggc tac cat gga gga tat aag gga aag tat  
 288 Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr  
 85 90 95  
 tac gga aag gca aag aaa tac tat tat aaa tat aaa aac agc gga aaa  
 336 Tyr Gly Lys Ala Lys Lys Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys  
 100 105 110  
 tac aag tat cta aag aaa gct aga aaa tac cat aga aag ggt tac aag  
 384 Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys  
 115 120 125  
 aag tat tat gga ggt agc agt gaa ttc  
 411 Lys Tyr Tyr Gly Gly Ser Ser Glu Phe  
 130 135

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<210> 10  
<211> 137  
<212> PRT  
<213> Artificial Sequence

<400> 10  
Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro  
1 5 10 15  
Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys  
20 25 30  
Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr  
35 40 45  
Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ser Ser Glu Glu  
50 55 60  
Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly  
65 70 75 80  
Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr  
85 90 95  
Tyr Gly Lys Ala Lys Lys Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys  
100 105 110  
Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys  
115 120 125  
Lys Tyr Tyr Gly Ser Ser Glu Phe  
130 135

<210> 11  
<211> 411  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Bioadhesive protein(mgfp-051) coding sequence

<220>  
<221> CDS  
<222> (1)..(411)  
<223> Bioadhesive protein(mgfp-051)

<400> 11  
agt tct gaa gaa tac aag ggt ggt tat tac cca ggc aat tcg aac cac  
48  
Ser Ser Glu Glu Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His  
1 5 10 15  
tat cat tca ggt ggt agt tat cac gga tcc ggc tac cat gga gga tat  
96  
Tyr His Ser Gly Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr  
20 25 30  
aag gga aag tat tac gga aag gca aag aaa tac tat tat aaa tat aaa

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144

Lys Gly Lys Tyr Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys  
35 40 45

aac agc gga aaa tac aag tat cta aag aaa gct aga aaa tac cat aga  
192

Asn Ser Gly Lys Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg  
50 55 60

aag ggt tac aag aag tat tat gga ggt agc agt gaa ttc gct aaa ccg  
240

Lys Gly Tyr Lys Lys Tyr Tyr Gly Gly Ser Ser Glu Phe Ala Lys Pro  
65 70 75 80

tct tac ccg ccg acc tac aaa gca aaa ccc tcg tac cca ccg act tat  
288

Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr  
85 90 95

aag gct aaa cct agc tat cca cct acg tac aaa gct aaa ccg tct tac  
336

Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr  
100 105 110

ccg ccg act tac aaa gca aaa ccg tcc tac cct ccg acc tat aag gct  
384

Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala  
115 120 125

aaa ccg agt tac ccc ccg act tac aaa

411

Lys Pro Ser Tyr Pro Pro Thr Tyr Lys  
130 135

<210> 12

<211> 137

<212> PRT

<213> Artificial Sequence

<400> 12

Ser Ser Glu Glu Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His  
1 5 10 15

Tyr His Ser Gly Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr  
20 25 30

Lys Gly Lys Tyr Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys  
35 40 45

Asn Ser Gly Lys Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg  
50 55 60

Lys Gly Tyr Lys Lys Tyr Tyr Gly Ser Ser Glu Phe Ala Lys Pro  
65 70 75 80

Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr  
85 90 95

Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr  
100 105 110

Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala  
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115                  120                  125

Lys Pro Ser Tyr Pro Pro Thr Tyr Lys  
130                  135

<210> 13  
<211> 591  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Bioadhesive protein(mgfp-151) coding sequence

<220>  
<221> CDS  
<222> (1)..(591)  
<223> Bioadhesive protein(mgfp-151)

<400> 13  
gct aaa ccg tct tac ccg ccg acc tac aaa gca aaa ccc tcg tac cca  
48  
Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro  
1                5                10                15

ccg act tat aag gct aaa cct agc tat cca cct acg tac aaa gct aaa  
96  
Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys  
20                25                30

ccg tct tac ccg ccg act tac aaa gca aaa ccg tcc tac cct ccg acc  
144  
Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr  
35                40                45

tat aag gct aaa ccg agt tac ccc ccg act tac aaa agt tct gaa gaa  
192  
Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ser Ser Glu Glu  
50                55                60

tac aag ggt ggt tat tac cca ggc aat tcg aac cac tat cat tca ggt  
240  
Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly  
65                70                75                80

ggt agt tat cac gga tcc ggc tac cat gga gga tat aag gga aag tat  
288  
Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr  
85                90                95

tac gga aag gca aag aaa tac tat tat aaa tat aaa aac agc gga aaa  
336  
Tyr Gly Lys Ala Lys Lys Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys  
100                105                110

tac aag tat cta aag aaa gct aga aaa tac cat aga aag ggt tac aag  
384  
Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys  
115                120                125

aag tat tat gga ggt agc agt gaa ttc gct aaa ccg tct tac ccg ccg  
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432

Lys Tyr Tyr Gly Gly Ser Ser Glu Phe Ala Lys Pro Ser Tyr Pro Pro  
130 135 140

480

Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro  
145 150 155 160

528

Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr  
165 170 175

576

aaa gca aaa ccg tcc tac cct ccg acc tat aag gct aaa ccg tct tac ccg ccg act tac  
Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr  
180 185 190

591

Pro Pro Thr Tyr Lys  
195

<210> 14

<211> 197

<212> PRT

<213> Artificial Sequence

<400> 14

Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro  
1 5 10 15

Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys  
20 25 30

Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr  
35 40 45

Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ser Ser Glu Glu  
50 55 60

Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly  
65 70 75 80

Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr  
85 90 95

Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys  
100 105 110

Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys  
115 120 125

Lys Tyr Tyr Gly Gly Ser Ser Glu Phe Ala Lys Pro Ser Tyr Pro Pro  
130 135 140

Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro  
145 150 155 160

Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr  
165 170 175

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Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr  
180 185 190

Pro Pro Thr Tyr Lys  
195

<210> 15  
<211> 354

<212> DNA  
<213> Artificial Sequence

<220>  
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<220>  
<221> CDS  
<222> (1)...(351)  
<223> Bioadhesive recombinant protein expressed in pMDG05 vector

<400> 15  
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48  
Met Gly Gly Ser His His His His His Gly Met Ala Ser Met Thr  
1 5 10 15

ggt gga cag caa atg ggt cgg act ctg tac gac gat gac gat aag gat  
96  
Gly Gly Gln Gln Met Gly Arg Thr Leu Tyr Asp Asp Asp Asp Lys Asp  
20 25 30

cga tgg gga tcc gag ctc gag atc tgc agc agt tct gaa gaa tac aag  
144  
Arg Trp Gly Ser Glu Leu Glu Ile Cys Ser Ser Glu Glu Tyr Lys  
35 40 45

ggt ggt tat tac cca ggc aat tcg aac cac tat cat tca ggt ggt agt  
192  
Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly Gly Ser  
50 55 60

tat cac gga tcc ggc tac cat gga gga tat aag gga aag tat tac gga  
240  
Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr Tyr Gly  
65 70 75 80

aag gca aag aaa tac tat tat aaa tat aaa aac agc gga aaa tac aag  
288  
Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys Tyr Lys  
85 90 95

tat cta aag aaa gct aga aaa tac cat aga aag ggt tac aag aag tat  
336  
Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys Lys Tyr  
100 105 110

tat gga ggt agc agt taa  
354  
Tyr Gly Gly Ser Ser

<210> 16  
 <211> 117  
 <212> PRT  
 <213> Artificial Sequence  
  
 <400> 16  
 Met Gly Gly Ser His His His His His Gly Met Ala Ser Met Thr  
     1               5                  10                         15  
 Gly Gly Gln Gln Met Gly Arg Thr Leu Tyr Asp Asp Asp Asp Lys Asp  
     20                                25                          30  
 Arg Trp Gly Ser Glu Leu Glu Ile Cys Ser Ser Ser Glu Glu Tyr Lys  
     35                                40                          45  
 Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly Gly Ser  
     50                                55                          60  
 Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr Tyr Gly  
     65                                70                          75                          80  
 Lys Ala Lys Lys Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys Tyr Lys  
     85                                90                          95  
 Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys Lys Tyr  
     100                              105                          110  
 Tyr Gly Gly Ser Ser  
     115

<210> 17  
 <211> 456  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> construct for expression of Bioadhesive protein(mgfp-150) in  
 pMDG150 vector

<220>  
 <221> CDS  
 <222> (1)...(453)  
 <223> Bioadhesive recombinant protein expressed in pMDG150 vector

<400> 17  
 atg ggg ggt tct cat cat cat cat cat ggt atg gct agc gct aaa  
     48  
 Met Gly Gly Ser His His His His His Gly Met Ala Ser Ala Lys  
     1               5                  10                          15  
 ccg tct tac ccg ccg acc tac aaa gca aaa ccc tcg tac cca ccg act  
     96  
 Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr  
     20                                25                          30  
 tat aag gct aaa cct agc tat cca cct acg tac aaa gct aaa ccg tct  
     144

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Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser  
35 40 45

tac ccg ccg act tac aaa gca aaa ccg tcc tac cct ccg acc tat aag  
192

Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys  
50 55 60

gct aaa ccg agt tac ccc ccg act tac aaa ggc tgc agt tct gaa gaa  
240

Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Gly Cys Ser Ser Glu Glu  
65 70 75 80

tac aag ggt ggt tat tac cca ggc aat tcg aac cac tat cat tca ggt  
288

Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly  
85 90 95

ggt agt tat cac gga tcc ggc tac cat gga gga tat aag gga aag tat  
336

Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr  
100 105 110

tac gga aag gca aag aaa tac tat tat aaa tat aaa aac agc gga aaa  
384

Tyr Gly Lys Ala Lys Lys Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys  
115 120 125

tac aag tat cta aag aaa gct aga aaa tac cat aga aag ggt tac aag  
432

Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys  
130 135 140

aag tat tat gga ggt agc agt taa

456

Lys Tyr Tyr Gly Gly Ser Ser  
145 150

<210> 18

<211> 151

<212> PRT

<213> Artificial Sequence

<400> 18

Met Gly Gly Ser His His His His His His Gly Met Ala Ser Ala Lys  
1 5 10 15

Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr  
20 25 30

Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser  
35 40 45

Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys  
50 55 60

Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Gly Cys Ser Ser Glu Glu  
65 70 75 80

Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly  
85 90 95

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Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr  
100 105 110  
Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys  
115 120 125  
Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys  
130 135 140  
Lys Tyr Tyr Gly Gly Ser Ser  
145 150

<210> 19

<211> 540

<212> DNA

<213> Artificial Sequence

<220>

<223> construct for expression of Bioadhesive protein(mgfp-051) in pMDG051 vector

<220>

<221> CDS

<222> (1)..(537)

<223> Bioadhesive recombinant protein expressed in pMDG051 vector

<400> 19

atg ggg ggt tct cat cat cat cat ggt atg gct agc atg act  
48  
Met Gly Gly Ser His His His His His Gly Met Ala Ser Met Thr  
1 5 10 15

ggt gga cag caa atg ggt cgg act ctg tac gac gat gac gat aag gat  
96  
Gly Gly Gln Gln Met Gly Arg Thr Leu Tyr Asp Asp Asp Lys Asp  
20 25 30

cga tgg gga tcc gag ctc gag atc tgc agc agt tct gaa gaa tac aag  
144  
Arg Trp Gly Ser Glu Leu Glu Ile Cys Ser Ser Glu Glu Tyr Lys  
35 40 45

ggt ggt tat tac cca ggc aat tcg aac cac tat cat tca ggt ggt agt  
192  
Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly Gly Ser  
50 55 60

tat cac gga tcc ggc tac cat gga gga tat aag gga aag tat tac gga  
240  
Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr Tyr Gly  
65 70 75 80

aag gca aag aaa tac tat tat aaa tat aac aac agc gga aaa tac aag  
288  
Lys Ala Lys Lys Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys Tyr Lys  
85 90 95

tat cta aag aaa gct aga aaa tac cat aga aag ggt tac aag aag tat  
336  
Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys Lys Tyr

100

105

110

tat gga ggt agc agt gaa ttc gct aaa ccg tct tac ccg ccg acc tac  
 384  
 Tyr Gly Gly Ser Ser Glu Phe Ala Lys Pro Ser Tyr Pro Pro Thr Tyr  
 115 120 125

aaa gca aaa ccc tcg tac cca ccg act tat aag gct aaa cct agc tat  
 432  
 Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr  
 130 135 140

cca cct acg tac aaa gct aaa ccg tct tac ccg ccg act tac aaa gca  
 480  
 Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala  
 145 150 155 160

aaa ccg tcc tac cct ccg acc tat aag gct aaa ccg agt tac ccc ccg  
 528  
 Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro  
 165 170 175

act tac aaa taa 540  
 Thr Tyr Lys

&lt;210&gt; 20

&lt;211&gt; 179

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;400&gt; 20

Met Gly Gly Ser His His His His His His Gly Met Ala Ser Met Thr  
 1 5 10 15

Gly Gly Gln Gln Met Gly Arg Thr Leu Tyr Asp Asp Asp Asp Lys Asp  
 20 25 30

Arg Trp Gly Ser Glu Leu Glu Ile Cys Ser Ser Glu Glu Tyr Lys  
 35 40 45

Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly Gly Ser  
 50 55 60

Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr Tyr Gly  
 65 70 75 80

Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys Tyr Lys  
 85 90 95

Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys Lys Tyr  
 100 105 110

Tyr Gly Gly Ser Ser Glu Phe Ala Lys Pro Ser Tyr Pro Pro Thr Tyr  
 115 120 125

Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr  
 130 135 140

Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala  
 145 150 155 160

Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro

Thr Tyr Lys

<210> 21  
<211> 642  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> construct for expression of Bioadhesive protein(mgfp-151) in pMDG151 vector

<220>  
<221> CDS  
<222> (1)..(639)  
<223> Bioadhesive recombinant protein expressed in pMDG151 vector

<400> 21  
atg ggg ggt tct cat cat cat cat ggt atg gct agc gct aaa  
48 Met Gly Gly Ser His His His His His Gly Met Ala Ser Ala Lys  
1 5 10 15

ccg tct tac ccg ccg acc tac aaa gca aaa ccc tcg tac cca ccg act  
96 Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr  
20 25 30

tat aag gct aaa cct agc tat cca cct acg tac aaa gct aaa ccg tct  
144 Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser  
35 40 45

tac ccg ccg act tac aaa gca aaa ccg tcc tac cct ccg acc tat aag  
192 Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys  
50 55 60

gct aaa ccg agt tac ccc ccg act tac aaa ggc tgc agt tct gaa gaa  
240 Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Gly Cys Ser Ser Glu Glu  
65 70 75 80

tac aag ggt ggt tat tac cca ggc aat tcg aac cac tat cat tca ggt  
288 Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly  
85 90 95

ggt agt tat cac gga tcc ggc tac cat gga gga tat aag gga aag tat  
336 Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr  
100 105 110

tac gga aag gca aag aaa tac tat tat aaa tat aaa aac agc gga aaa  
384 Tyr Gly Lys Ala Lys Lys Tyr Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys  
115 120 125

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tac aag tat cta aag aaa gct aga aaa tac cat aga aag ggt tac aag  
432 Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys  
130 135 140  
aag tat tat gga ggt agc agt gaa ttc gct aaa ccg tct tac ccg ccg  
480 Lys Tyr Tyr Gly Gly Ser Ser Glu Phe Ala Lys Pro Ser Tyr Pro Pro  
145 150 155 160  
acc tac aaa gca aaa ccc tcg tac cca ccg act tat aag gct aaa cct  
528 Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro  
165 170 175  
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576 Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr  
180 185 190  
aaa gca aaa ccg tcc tac cct ccg acc tat aag gct aaa ccg agt tac  
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35 40 45  
Tyr Pro Pro Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys  
50 55 60  
Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Gly Cys Ser Ser Glu Glu  
65 70 75 80  
Tyr Lys Gly Gly Tyr Tyr Pro Gly Asn Ser Asn His Tyr His Ser Gly  
85 90 95  
Gly Ser Tyr His Gly Ser Gly Tyr His Gly Gly Tyr Lys Gly Lys Tyr  
100 105 110  
Tyr Gly Lys Ala Lys Lys Tyr Tyr Lys Tyr Lys Asn Ser Gly Lys  
115 120 125  
Tyr Lys Tyr Leu Lys Lys Ala Arg Lys Tyr His Arg Lys Gly Tyr Lys  
130 135 140

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Lys Tyr Tyr Gly Gly Ser Ser Glu Phe Ala Lys Pro Ser Tyr Pro Pro  
145 150 155 160  
Thr Tyr Lys Ala Lys Pro Ser Tyr Pro Pro Thr Tyr Lys Ala Lys Pro  
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